

# **Seabird Monitoring and Response to Fireworks Display at Depoe Bay and Bandon, Oregon**

**Refuge:** Oregon Islands National Wildlife Refuge

**Objective:** Determine disturbance impacts of fireworks at the Coquille Point seabird colony complex near Bandon, Oregon

**Study Timing:** June/September 2011

**Target Species:** common murre, Brandt's cormorant, pelagic cormorant, western gull, and black oystercatcher

**Background:** Oregon Islands National Wildlife Refuge is administered by the U.S. Fish and Wildlife Service (USFWS) and includes 1,854 rocks, reefs and islands along the Oregon coast. In addition to National Wildlife Refuge status, all of the rocks, reefs and islands within this Refuge are designated as Wilderness Area with the exception of Tillamook Rock.

Seabirds are protected by the Migratory Birds Treaty Act and when they occur on Refuge lands they receive further protection under provisions of the National Wildlife Refuge System Administration Act. The seabird populations that nest within Oregon Islands and Three Arch Rocks NWRs are of regional, national, and international importance with more than 1 million nesting birds constituting nearly 50% of the nesting population within California, Oregon and Washington combined. The USFWS has worked diligently to protect and manage seabirds in Oregon for more than 30 years. Seabirds are extremely sensitive to human disturbance and single disturbance events can cause mortality of eggs and young or result in colony abandonment by adults (Weigand and McChesney 2008). Sources of human disturbance that are well recognized include light intrusion, model aircraft and kites, close-approaching boats, humans on foot near or within colony sites, and low-flying aircraft. Management that limits disturbances to seabirds during their reproductive cycles is critical to preserve and protect Oregon seabird populations. One source of disturbance that has recently been documented is the impact from the discharge of large-scale community celebratory fireworks near seabird colonies (Weigand and McChesney 2008). This study documented nest abandonment by Brandt's cormorants associated with a single-day fireworks disturbance event in California.

During the July 3, 2010, Independence Day fireworks celebration at Depoe Bay, seabird disturbance at the Pirate Cove Rock colony was observed by a local resident and reported to the USFWS several days later (Roy Lowe pers com). The fireworks launch site is within Boiler Bay State Park 1.21 km north of the Pirate Cove Rock seabird colony. In addition, during the annual Independence Day fireworks celebration at Bandon, seabird disturbance at the Coquille Point colony complex has also been observed by local residents. The fireworks launch site is located at Bullards Beach State Park 1.6 km north of the Coquille Point seabird colony complex. Refuge personnel believe that the detonation of fireworks this close to the active seabird colonies has a high likelihood of being detrimental to nesting seabirds, and potentially constitutes a "take" as defined by the Migratory Bird Treaty Act.

On January 12, 2011, Refuge personnel met with Depoe Bay Mayor, city council members, Chamber of Commerce and others and proposed an alternative fireworks launch location at

Fogarty Creek State Park, approximately 2.57 km north of the Pirate Cove Rock colony. This site may still proved to be too close, but USFWS personnel were willing to try this location. However, this alternative location was unacceptable to the city of Depoe Bay and the city requested a biological monitoring study be conducted during 2011 to document fireworks effects to the Pirate Cove Rock seabird colony. The USFWS has agreed to conduct a monitoring study at Pirate Cove Rock during 2011 to determine if the fireworks have an adverse effect on the seabirds, particularly breeding success. Monitoring will be conducted if fireworks are launched from either the Boiler Bay or Fogarty Creek. If mortality of eggs, young or abandonment of nests occurs, the USFWS will advise the Oregon Parks and Recreation Department to not issue any future permits for fireworks in this area. This issue is highly controversial and has been receiving front-page coverage on local newspapers well as inquires from the Congressional delegation. The Bandon fireworks issue will be just as controversial once it is known the public. With the exception of the single study in California, there have been no other studies if fireworks impacts on seabirds on the west coast of the United States. Our intent is to use the results of these two studies to develop management recommendation for the entire Oregon coast.

**Study Areas:** Pirate Cove Rock (Seabird Colony #243-000.3) is located on the north end of the city of Depoe Bay, Oregon at 44°49'11"N, 124°4'1"W. In recent years, this Refuge rock has been utilized by 200-300 pairs of nesting seabirds including Brandt's cormorant (*Phalacrocorax penicillatus*), pelagic cormorant (*Phalacrocorax pelagicus*), western gull (*Larus occidentalis*), glaucous-winged gull (*Larus glaucescens*), and black oystercatcher (*Haematopus bachmani*) (Naughton *et al.* 2007).

Coquille Point Colony Complex (Seabird Colony Numbers 270-013 to 270-018) is located south of the Coquille River confluence and west of Coquille Point. The colony complex consists of eight separate colonies. In recent years, this complex has been utilized by approximately 23,000 individual breeding seabirds including common murre (*Uria aalge*), Brandt's cormorant, pelagic cormorant, western gull, glaucous-winged x western gull hybrids (*L. occidentalis* x *L. glaucescens*), pigeon guillemot (*Cepphus grylle*), tufted puffin (*Fratercula cirrhata*), and black oystercatcher; Naughton *et al.* 2007).

**Methods:** The USFWS proposes to study the effects that the Independence Day fireworks display has on the Pirate Cove Rock and Coquille Point seabird colony complex during the 2011 breeding season. The study period will be from 01 June to 01 September 2011, with a core monitoring period from 01 to 15 July. The USFWS Refuge staff and technicians will conduct the study. Monitoring will be focused on populations of surface-nesting seabirds at the Pirate Cove colony and Coquille Point colony complex, particularly the common murre, Brandt's cormorant, pelagic cormorant, western gull, and black oystercatcher. We will examine potential responses and effects on reproductive success from the large-scale community fireworks displays. Behavioral observation data collection methods will follow those described in Weigand and McChesney (2008) and in existing protocols of the USFWS (USFWS 2010 unpublished report) for monitoring seabird colonies from mainland vantage points and with aerial photography.

Surveys will include four daily bird counts and behavioral observations of all seabird species and monitoring of visible nests of Brandt's cormorants, pelagic cormorants, western gulls, and black oystercatchers between 01 and 15 July from at least two mainland observation points. Aerial photographic surveys of the Pirate Cove colony and Coquille Point colony complex will be

conducted on six dates between 01 June to 01 September with a helicopter or fixed-wing aircraft to document numbers of nests and relative nest success for the entire colony. Photographs will be taken from the mainland vantage points at the same time and location each day to document seabird distribution, densities, and behavior. Night-vision goggles and infra-red camera equipment will be used on during the fireworks displays to examine bird behavior prior to and during the fireworks displays.

**Budget: \$19,200**

<b>Item Description</b>	<b>Cost</b>
Aerial Photographic Surveys (6 @ 4 hrs each) – fixed-wing aircraft	\$8,400 (24 hrs @ \$350/hr)
Biological Science Technician (monitoring, photography, data analysis)	\$3,200 (160 hrs @ \$20/hr)
Nighttime Camera/Video Equipment	\$6,000
Final Report	\$1,600 (80 hrs @ \$20/hr)
Digital Camera Equipment (used during aerial surveys)	USFWS In-kind contribution
Computer GIS Software	USFWS In-kind contribution

**Literature Cited**

Naughton, M.B., D.S. Pitkin, R.W. Lowe, K.J. So, and C.S. Strong. 2007. Catalog of Oregon seabird colonies. U.S. Department of the Interior, Fish and Wildlife Service, Biological Technical Publication FWS/BTP-R1009-2007, Washington, D.C.

Weigand, J.F. and McChesney, G.J. 2008. Seabird and marine mammal monitoring and response to a fireworks display at Gualala Point Island, Sonoma County, California, May to August 2007. Unpublished report, USDI Bureau of Land Management, California State Office, Sacramento CA; and USDI Fish and Wildlife Service, San Francisco Bay National Wildlife Refuge Complex, Newark, CA. 38 pp.

USFWS. 2010. Aerial Seabird Census Training Manual. Oregon Coast National Wildlife Refuge Complex, Newport, Oregon. Unpublished report.